

CLAIMS

1. A resume reproduction system which is a system device for reproducing moving image data in an arbitrary format (including a file in which still images are recorded continuously, and an animation file; same hereinafter), comprising:
 - an input operation part for performing an input operation;
 - a storage part for storing a moving image data file, a reproduction information file in which control information concerning a reproduction process, including a reproduction position of the moving image file, is described, and a reproduction processing reference file composed of image data of an arbitrary number of unit frames;
 - a moving image file processing part for performing the reproduction process for the moving image file;
 - a reproduction information file processing part for performing a reading/writing and an analysis of the reproduction information file; and
 - an operation managing part for controlling the moving image file processing part and the reproduction information file processing part.
2. The resume reproduction system as claimed in claim 1, wherein the storage part is incorporated in a terminal including the resume reproduction system, attached externally, or associated on an external network.
3. The resume reproduction system as claimed in claim 1 or 2, wherein the moving image file processing part includes a data processing part for performing at least one of processes of reproducing and recording each of different types of data included in the moving image file.
4. The resume reproduction system as claimed in any one of claims 1 to 3, wherein the reproduction information file processing part includes:
 - a file analyzing part for analyzing a syntax of a read file; and
 - informing means for informing the operation managing part of a result of a file analysis by the file analyzing part.

5. The resume reproduction system as claimed in any one of claims 1 to 4, wherein, in the reproduction information file are described:

a process determination code for indicating whether or not a file is to be processed, a file name of the moving image file to be reproduced, and a reproduction start time to reproduce.

6. The resume reproduction system as claimed in any one of claims 1 to 5, wherein the moving image file processing part includes means for informing the operation managing part of: a reproduction elapsed time during the reproduction process for the moving image file; and a basic frame processing time at which a reproduction process is performed for a reference image generation frame which is a basic frame included in the moving image file, and includes all information necessary for reproducing an image of one frame.

7. The resume reproduction system as claimed in any one of claims 2 to 6, wherein the data processing part includes:

means for retrieving an arbitrary number of frames following a point of occurrence of an event for instructing a timing for creating the reproduction information file, from the moving image file;

means for generating a basic frame; and

means for coupling the basic frame and a difference frame including only a difference from an immediately preceding frame to generate one reproduction processing reference file.

8. The resume reproduction system as claimed in any one of claims 2 to 7, wherein the reproduction processing reference file includes a process determination code for indicating whether or not a file is to be processed, a file name of the moving image file to be reproduced, and at least a basic frame among the basic frame and a difference frame.

9. The resume reproduction system as claimed in any one of claims 1 to 8,

wherein the operation managing part includes determining means for detecting a difference between a reproduction start time and a basic frame processing time, and determining whether or not a detected difference value is within an arbitrary threshold value.

10. The resume reproduction system as claimed in any one of claims 1 to 9, wherein the moving image file processing part is capable of selecting whether or not to start a reproduction process from an arbitrary basic frame in the moving image file, or to perform a reproduction process for a difference frame subsequently after reproducing frame data in the reproduction processing reference file.

11. The resume reproduction system as claimed in any one of claims 1 to 10, wherein the input operation part includes an interface for acquiring a mode value for an operator to set whether or not to perform a resume reproduction, a name of the moving image file to be reproduced, at least one of a reproduction event and a stop event, and an event for instructing a timing for creating the reproduction information file at an arbitrary position during reproduction of the moving image file.

12. A resume reproduction system which is a device for reproducing moving image data in an arbitrary format, wherein the device processes an arbitrary number of following frames into a basic frame when receiving a command to shift to a resume state.

13. A resume reproduction method comprising steps of:

acquiring a moving image file name to be reproduced, according to an operation event from an operator;

acquiring a moving image file corresponding to the moving image file name, and dividing the moving image file into different types of data when the moving image file is in a file format in which the different types of the data are multiplexed;

performing a reproduction process concerning a basic frame including all data of information necessary for reproducing one frame, and a reproduction process for a

difference frame including only difference data from an immediately preceding frame;
and

determining whether or not a reproduction stop command or a generation command for a reproduction information file has been issued according to the operation event from a file operator including the basic frame, and when a reproduction stop event or a reproduction information file generation command had occurred, creating a related file for performing a resume reproduction, and generating a basic frame from data of an arbitrary number of frames subjected to the reproduction process.

14. The resume reproduction method as claimed in claim 13, wherein the method further comprises steps of detecting a difference between a reproduction elapsed time at which a decoding process is executed, and a decoding process time for the new I frame, determining whether or not the difference value is equal to or smaller than a predetermined threshold value, and storing recoded data when the difference value is equal to or larger than the threshold value which is a reference value for determining whether or not the resume reproduction is effective.

15. The resume reproduction method as claimed in claim 13 or 14, wherein the method further comprises a step of determining whether or not to set a reproduction start position of the multiplexed data to an originally existing I frame, or to the new I frame.

16. A resume reproduction method comprising steps of:

discriminating whether or not a resume reproduction mode is specified according to an operation event;

reading a reproduction information file corresponding to a file name of data including an I frame when the resume reproduction mode is specified; and

searching for a reproduction processing reference file corresponding to the moving image file name according to a reproduction file name and a reproduction start time described in the reproduction information file, and when the reproduction

processing reference file exists, reading the reproduction processing reference file, decoding the reproduction processing reference file and starting a decoding process from a P frame located at a position of the reproduction start time, and when the reproduction processing reference file does not exist, starting a decoding process from an I frame located immediately before the reproduction start time.

17. A program for causing a computer to execute the steps as claimed in any one of claims 13 to 16.

18. The system, method, or program as claimed in any one of claims 1 to 17, wherein the moving image file includes image data, audio data, and telop data.

19. A resume reproduction system which is a device for reproducing multiplexed data composed of different types of data multiplexed, comprising:

a storage part for storing a multiplex data file, a reproduction information file in which control information concerning a reproduction process, including a reproduction position of the multiplexed data, is described, and a reproduction processing reference file composed of recoded data of unit frames;

a multiplex file processing part for performing the reproduction process for the multiplex file; and

a reproduction information file processing part for performing an analysis process for the reproduction information file.